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soundings down to thirty fathoms, and the other slung so as to register down to forty-five fathoms. With the former about four and a half horse-power is absorbed at a speed of eight knots. It should be stated that the apparatus can be used for taking soundings at any depth within its limits of working, as well as to form a permanent indication of when the ship passed into water of less than a given depth. All that is required to do is to pay the kite out slowly, with a hand on the brake which is provided for checking the speed. When the gong sounds, a glance at the dial will show the vertical depth due to the length of wire paid out.

EXPERIMENTS WITH LEYDEN JARS.

At a meeting of the Physical Society, London, held June 12 (reported in *Engineering* of June 19), some experiments with Leyden jars were shown by Dr. Lodge. The first one was with resonant jars, in which the discharge of one jar precipitated the overflow of another when the lengths of the jar circuits were properly adjusted or tuned. The latter jar was entirely disconnected from the former, and was influenced merely by electromagnetic waves emanating from the discharging circuit. Lengthening or shortening either circuit prevented the overflow. Correct tuning was, he said, of great importance in these experiments, for a dozen or more oscillations occurred before the discharge ceased. The effect could be shown over considerable distances. In connection with this subject Mr. Blakesley had called his attention to an observation made by Priestley many years ago, who noticed that when several jars were being charged from the same prime conductor, if one of them discharged, the others would sometimes also discharge, although they were not fully charged. This he, Dr. Lodge, thought might be due to the same kind of influence which he had just shown to exist. The word "resonance," he said, was often misunderstood by supposing it always had reference to sound, and as substitutes he thought that "symphoning" or "symphonic" might be allowable.

The next experiment was to show that wires might be tuned to respond to the oscillation of a jar-discharge, just as a string could be tuned to respond to a tuning-fork. A thin stretched wire was connected to the knob of a jar, and another parallel one to its outer coating, and, by varying the length of an independent discharging circuit, a glow was caused to appear along the remote halves of the stretched wires at each discharge. Each of the wires thus acted like a stopped organ pipe, the remote ends being the notes at which the variations of pressure are greatest. By using long wires he had observed a glow on portions of them with the intermediate parts dark: this corresponded with the first harmonic, and by measuring the distance between two nodes, he had determined the wave length of the oscillations. The length so found did not agree very closely with the calculated length, and the discrepancy he thought due to the specific inductive capacity of the glass not being the same for such rapidly alternating pressures as for steady ones. He also showed that the electric pulses passing along a wire could be caused (by tuning) to react on the jar to which it was connected, and cause it to overflow, even when the distance from the outside to the inside coating was about eight inches. During this experiment he pointed out that the noise of the spark was greatly reduced by increasing the length of the discharging circuit. The same fact was also illustrated by causing two jars to discharge into each other, spark gaps being put both between their inner and outer coatings, so as to obtain "A" sparks and "B" sparks. By putting on a long "alternative path" as a shunt to the B spark gap, and increasing that gap, the noise of the A spark was greatly reduced. He had reason to believe that the B spark was a quarter phase behind the A spark, but the experimental proof had not been completed.

He next described some experiments on the screening of electromagnetic radiation, in which a Hertz resonator was surrounded by different materials. He had found no trace of opacity in insulators, but the thinnest film of metal procurable completely screened the resonator. Cardboard rubbed with plumbago also acted like a nearly perfect screen. In connection with resonators he exhibited what he called a graduated electric eye, or an electric harp, made by his assistant, Mr. Robinson, in which strips of tinfoil of different lengths are attached to a glass plate, and have spark gaps at each end which separate them from other pieces of foil. One or other of the strips would respond according to the frequency of the electro-magnetic radiation falling upon it.

A GIFT TO THE UNIVERSITY OF CHICAGO.

The executors of the estate of the late William B. Ogden, who was the first mayor of Chicago, have selected the University of Chicago as one of the beneficiaries under the terms of Mr. Ogden's will, — giving it a scientific school.

The conditions attached by the executors to the gift — which will amount to from three hundred thousand to half a million dollars — are, that the school shall be a separate department of the university, and bear the name of the Ogden Scientific School, its purpose being to furnish graduate students with the best facilities possible for scientific investigation by courses of lectures and laboratory practice. The income of the money appropriated is to be devoted to and used for the payment of salaries and fellowships, and the maintenance of laboratories in physics, chemistry, biology, geology, and astronomy, with the subdivisions of these departments. A large share of the time of the professors in the school is to be given to original investigation, and encouragement of various kinds is to be furnished them to publish the results of their investigations, a portion of the funds being set apart for the purpose of such publication. The school is to include all the graduate work of the university on the subjects mentioned, and further appropriations or donations which may be made toward these objects are to be added to the original foundation, and not to be devoted to new schools doing similar or parallel work. Some portion of the income of the foundation is to be set apart for the purchase of books to be placed in the special departmental and laboratory libraries of the proposed school.

The university in accepting this gift is required to pledge itself to erect the contemplated school, under the suggested name, on the receipt of $300,000, whether or not the wish and expectations of the trustees be realized in the final receipt from the fund of a much larger sum. In the event, however, of any unforeseen circumstances preventing the money designated from reaching the sum of $300,000, the money which may be received shall be used for the endowing of one or more professorships in the university to be severally known as the Ogden Professorships.

It is further desired that at least one of the board of trustees of the university shall be the nominee of the executors and trustees of Mr. Ogden's estate, in order that in the formation and development of the scientific school proposed, the wishes of the trustees may be voiced by at least one member of the governing board of the university. And finally it is required that it shall be distinctly understood that there shall be absolute freedom in respect to the admission to the proposed school of students and professors alike, without reference to their particular religious beliefs.

LETTERS TO THE EDITOR.

⁂ *Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

The Dissipation of Energy.

In passing through a grove of scattered timber after a recent thunder-storm, I came to a tree that had been struck by lightning, a honey-locust (*Gelditschia*), about two feet in diameter.

At the bifurcation of the topmost limbs the bark and sap-wood were torn off for two or three inches in width, increasing as it passed down, until within ten feet of the ground, where it seemed to pass in and explode from the centre, splintering the tree on one side for a foot or two, then tearing the bark and sap-wood for a little ways down, and then leaving the rest without a mark on it for two or three feet above the roots. The splinters were scattered in a half circle twenty feet from the tree. The tree appeared to be perfectly sound and free from defect.